The most important nautical instrument in the early days was the quadrant, for the determination of the Right Ascension of the sun and stars, and hence the relative position of the vessel at any given moment.

For a long time, the quadrant in general use was one devised by that twelfth-century genius known as Robert the Englishman, first translator of the Koran into any European language. His invention held the field for many generations, until it was superseded by an improved instrument introduced by Rabbi Jacob ben Makhir ibn Tibbon—compiler, incidentally, of the Calendar used by Dante. This was known after him as the *Quadrans Judaicus.* The importance of Jacob ben Makhir's work was universally recognised; for he was read, and quoted with respect, by the founders of modern astronomy—Copernicus and Kepler—long after his day.

More than a dozen works from his pen are recorded: and he is said to have acted as Regent of the faculty of Medicine at Montpellier.

A more important invention was due to Rabbi Levi ben Gershom of Bagnols, in South France, the most eminent Jewish philosopher and exegete of the fourteenth century. His *magnum opus* was a philosophical work, *The Wars of the Lord,* which covered also a considerable part of the field of natural science. An entire section, comprising no less than 136 chapters out of a total of 237, is devoted to astronomy. Such was the reputation which the author enjoyed that, almost as

soon as the book was put into circulation, Pope Clement VI had the astronomical portion translated into Latin: a fortunate occurrence, as, when the original Hebrew was ultimately published, that part was not considered to be of sufficient theological importance to warrant inclusion. In this treatise, the author described an improved quadrant which he had invented, more easily handled than the